

PURCHASE DESCRIPTION

MICROWAVE SWEEP GENERATOR (10 MHz to 26.5 GHz)

GE1RX-C

- 1.0 GENERAL These salient characteristics describe a microwave sweep generator covering a frequency range of 10 MHz to 26.5 GHz, employing no more than one plug-in and one mainframe.
- 2.0 CLASSIFICATION The sweep generator described herein shall meet the requirements of MIL-T-28800(), Type III, Class 5, Style E, Color R for Navy shipboard, submarine and shore applications with the following modifications and exceptions:
- a. The Electromagnetic Interference requirements of MIL-T-28800() are limited to CE01, CE03, CS01, CS02 (0.05 to 100 MHz), CS06, RE01 (back panel search excluded), RE02 (14 kHz to 10 GHz), and RS03.
 - b. 400 Hz Power Source: Not required
 - c. The equipment warm-up period is increased to 1 hour.
- 3.0 OPERATIONAL CHARACTERISTICS
- 3.1 Frequency Characteristics
- 3.1.1 Range: 10 MHz to 26.5 GHz; a maximum of one plug-in or RF output is allowed.
- 3.1.2 Resolution: At least 1 MHz
- 3.1.3 Accuracy: In CW mode, measured accuracy within ± 20 MHz at $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$
- 3.1.4 Stability (less than the limits specified below)
- 3.1.4.1 Temperature: ± 1 MHz/ $^{\circ}\text{C}$ (over 0 - 50°C operating range)
 - 3.1.4.2 Line Voltage: ± 200 kHz ($\pm 10\%$ line voltage variation about 115 Vac)
 - 3.1.4.3 Warm-up: ± 1 MHz/10 minutes after 1 hour warm-up
- 3.1.5 Residual FM in CW Mode: Less than 15 kHz peak (measured in 50 Hz to 15 kHz bandwidth)
- 3.1.6 Spectral Purity (at least the limits specified below)
- 3.1.6.1 Harmonics/Sub-harmonics: < -20 dBc
 - 3.1.6.2 Spurious/Non-harmonics: < -25 dBc [10 MHz to 2.4 GHz]
 < -50 dBc [2.4 to 26.5 GHz]

3.2 Output Characteristics

- 3.2.1 Connector: Ruggedized coaxial (SMA compatible); VSWR less than 2.0:1
- 3.2.2 Maximum Leveled Output: > +7 dBm [10 MHz to 18 GHz] > +1
dBm [18 to 26 GHz]
- 3.2.3 Level Adjustment Range: At least 55 dB
- 3.2.4 Display: Digital readout; resolution 0.1 dB
- 3.2.5 Level Accuracy: ± 2.0 dB (displayed level vs measured output level)
- 3.2.6 Flatness: ± 1.5 dB
- 3.2.7 Attenuator Error: $< \pm 3.3$ dB

3.3 Modulation Characteristics

- 3.3.1 Amplitude Modulation (AM)
 - 3.3.1.1 Internal AM (square wave)
 - 3.3.1.1.1 Rate: 1 kHz and 27.8 kHz
 - 3.3.1.1.2 On/Off Ratio: Greater than 30 dB
 - 3.3.1.2 External AM (square wave or pulse)
 - 3.3.1.2.1 Rate: 10 Hz to 50 kHz
 - 3.3.1.2.2 Input Levels: TTL compatible
 - 3.3.1.2.3 Sensitivity: 1 dB/V, maximum input 15V
- 3.3.2 Frequency Modulation (FM)
 - 3.3.2.1 External FM
 - 3.3.2.1.1 Deviation: At least 0 to ± 7 MHz
 - 3.3.2.1.2 Rate: At least 10 Hz to 100 kHz
 - 3.3.2.1.3 Sensitivity: Greater than 5 MHz/V

3.4 Sweep Characteristics

- 3.4.1 Range: 10 MHz to 26.5 GHz
- 3.4.2 Sweep Function: Start/Stop, CW, ΔF , Marker
- 3.4.3 Trigger Modes: Internal (automatic), Line, External, Single
- 3.4.4 Markers: At least 5; both amplitude and frequency
- 3.4.5 Sweep Output: 0 to 10 V ± 0.5 V, direct coupled, coincident with the swept RF
output

3.4.6 Sweep Time: At least 10 msec to 33.5 sec

3.5 Displays (digital)

3.5.1 Frequency: Start/Stop, CW, CF/ Δ F (4 digits minimum)

3.5.2 Marker/Time: Marker frequency or sweep time (3 digits minimum)

3.5.3 Output Level: Output signal level in dBm (3 digits minimum)

4.0 GENERAL REQUIREMENTS

4.1 Power: 115/230 Vac \pm 10% single phase 50/60 Hz, 400 W maximum

4.2 Lithium Batteries: Per MIL-T-28800, lithium batteries are prohibited without prior authorization. Requests for approving the use of lithium batteries, including those encapsulated in integrated circuits, shall be submitted to the procuring activity at the time of submission of proposals. Approval shall apply only to the specific model proposed.

4.3 Dimensions: Less than 36,052 cm³ (2200 in³); maximum height allowable 153 mm (6 in), including feet

4.4 Weight: Less than 27.3 kg (60 lb)

4.5 Calibration Interval: The calibration interval shall be 12 months minimum. The equipment shall be within all accuracy requirements specified herein, with a 72% or greater confidence factor following a calibration interval of 12 months.

4.6 Local Operation: All front panel control settings shall be storable in non-volatile memory for future recall.

4.7 Remote Control: Instrument must be capable of operating via the IEEE-488 interface bus and shall provide the capability to talk and listen.

4.8 Diagnostics: Functional self-test and trouble shooting shall be accomplished using front panel controlled diagnostic functions.

4.9 Rack Mountable